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PATENT SPECIFICATION

DRAWINGS ATTACHED

1,103,603



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COMPLETE SPECIFICATION

Power driven truck provided with an operating platform and load lifting platforms

We, ERNST WINTER of 12 Paul-Pfizer-Strasse, Reutlingen, Germany; ANNA WINTER of 20 Rommelsbacher Strasse, Reutlingen, Germany; ERNEST WAGNER of 22 Luftstrasse, Reutlingen, Germany; RUDOLF WAGNER of 4 Eugen-Bolz-Strasse, Reutlingen, Germany; FRIEDA KERM of 2 Staffeleßgasse, Reutlingen, Germany; and LUISE WAGNER of 3 Gartenstrasse, Reutlingen, Germany; all German Nationals, trading together as FIRMA ERNST WAGNER APPARATEBAU, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:

The invention relates to a power driven truck with a lifting mast from which a lifting platform and a raisable and lowerable operating platform extend.

According to the present invention there is provided a power driven truck having a lifting mast, an operating platform, for accommodating the operator of the truck, raisable and lowerable on the lifting mast, a first load lifting platform at one end of the operating platform and vertically movable with and relative to the operating platform, and a second load lifting platform at the end of operating platform remote from the first load lifting platform and likewise vertically movable with and relative to the operating platform.

The operating platform preferably extends in the longitudinal direction over the vehicle frame of the apparatus and the second platform can be lowered to the floor.

The operator on his platform need only bend forwards or backwards in order to remove goods from the shelf on the right or on the left and place them in the front or rear load platform.

The front load platform may be pivotable and movable towards the left or towards the right into the shelf compartments.

The drawing illustrates embodiments of the invention, partly in the form of schematic diagrams, since the main components of a fork lift truck are already known.

Figure 1 is a side view of the apparatus

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with the load platforms lowered, the vertically adjusted parts being shown in a raised position, by means of broken lines.

Figure 2 is a ground plan corresponding to Figure 1, rows of shelves or goods storage compartments being shown by means of broken lines on each side of the apparatus.

Figures 3 and 4 correspond to Figures 1 and 2 but with the difference that the apparatus has a longer vehicle frame and that the rear platform takes the form of a fork of a kind in itself already known.

To the vehicle frame 1 is affixed a lifting mechanism 2 which may consist of one or more separate masts.

Figure 1 shows two masts 3 and 4 which are guided one inside the other, in a known manner, by means of pairs of rollers, 5, 5' and 6, 6'. Known types of hydraulic cylinders and pistons, not shown in the drawing, are used for the drive.

An operating platform 7 with its railing 8 is rigidly connected to the mast 4, which is the one which will move farthest upwards. This platform will be hereinafter referred to as the control stand 7. From his stand the operator is able to control the travel and the lifting movements of the entire apparatus, regardless of the height at which the control stand is situated.

On the front of the control stand 7 or of the lifting post 4 there is a lifting slide 9 which is guided by rollers 10 and 10' and on which is mounted the actual load take up device 11 and 12. Independently of the lifting movement of the masts 3 and 4, the lifting slide 9 can be raised and lowered by a hydraulic cylinder mounted in the mast 4 and not shown in the drawing. In Figure 1, 9 shows the bottom position of the lifting slide in the lowered lifting mast 4, and 9' shows the top position of the lifting slide, which can be lowered into the position marked 9" on the mast 4. This position is convenient for the operator when, for example, a receptacle 18 for the collection of goods is carried by the load take-up device 11 and 12. The operator can reach into the receptacle 18, to the left or to the right

of the lifting post, which would not be the case if the receptacle were in its highest position 9'.

The front load take-up device consists of
5 a slide 11 which can move transversely to the lifting slide and which is provided, for example, on a horizontal shaft 15, with a supporting fork 12, which assumes a position perpendicular to the longitudinal direction of the stacking apparatus. The transversely movable supporting fork 12 enables goods or containers to be removed from a shelf or to be returned to their position. In this system the passage between the shelves
10 need only be slightly wider than the stacking apparatus. In Figure 2, broken lines are used to show the supporting fork 12, with a receptacle 18 mounted on it, moved transversely into different positions. Needless to say, the well known pallets can be used as supports for the goods or receptacles. The transverse movement of the supporting fork 12 is guided by means of pairs of rollers 13 and 14.

To enable the apparatus to serve the shelves to the left and the right of the passage a two pronged supporting fork 12 can be made pivotable about the aforementioned shaft 15 through an angle of 180°.

In the example shown in the drawing the near part of the control stand 7 is fitted with a vertical guide rail or with a lifting post 20 over which a lifting slide 21 can be raised and lowered over rollers 22. The lifting slide can be moved in the usual manner, hydraulically or by some other known means. The use of a lifting post enables the lifting slide 21 to be moved to greater distances upwards and downwards, because there are limits to the length of a guide rail rigidly connected to the control stand. The lifting slide 21 is rigidly connected to a platform or a pair of forks 23. A receptacle 24 can be provided on the pair of forks
45 23, in order to take up a large number of small items. In other respects the dimensions are such that the receptacle 24 can be deposited on the floor or else moved into the most convenient position for the operator, so that material collected can be deposited, as shown at the top of Figure 1.

The lifting post 20, preferably extends into the recess 25 in the vehicle frame or vehicle structure and in the control stand, as may be seen from Figure 2. Consequently, it is only the pair of forks 23 or the receptacle 24 that projects beyond the ground plan of the vehicle frame, so that the manoeuvrability of the stacking apparatus when moving along the passages is only very slightly restricted. The pair of forks, however, can also be mounted on hinges, so that the length of the vehicle is not increased when no material is loaded onto the pair of forks. Each individual fork can be hinged to the lifting slide 21 by means of a horizontal bolt. Figures 1 and 2 also show that the control stand extends towards the rear over the entire length
70 of the vehicle frame or vehicle structure 1.

In many cases, in which goods have to be lifted to a considerable height, it is desirable for the wheel base of the vehicle frame to be increased, as shown in Figures 3 and 4. As it is not necessary to increase the length of the control stand, the pair of forks is mainly situated within the contour of the vehicle frame, i.e. in a recess provided in the vehicle structure, as may be seen from Figure 4. In order to ensure that in this case larger objects or a wider receptacle 24 can be deposited on the floor, the lifting slide 21 is fitted with a fork 26 of the kind already known in itself. The broken lines in Figures 3 and 4 show the possible feed movement of the fork together with the receptacle. This system offers the advantage that despite the increased wheel base the receptacle 24 can be deposited on the floor and can be taken up again. Furthermore, the centre of gravity of the receptacle, when the fork is retracted, is not situated so far outside the wheels 31 of the vehicle, as may be seen at the top of Figure 3.

The stacking apparatus is propelled in the known manner by means of one or more driving motors 30. The wheels 31 can be steered by a one wheel steering system and steering roller, by a two or a four wheel steering system. The source of power consists, for example, of an electrical storage battery 32 provided inside the vehicle frame.

WHAT WE CLAIM IS:

1. A power-driven truck having a lifting mast, an operating platform, for accommodating the operator of the truck, raisable and lowerable on the lifting mast, a first load lifting platform at one end of the operating platform and vertically movable with and relative to the operating platform, and a second load lifting platform at the end of operating platform remote from the first load lifting platform and likewise vertically movable with and relative to the operating platform.

2. A truck as claimed in claim 1, wherein the second load lifting platform is vertically movable relative to the operating platform so that when the operating platform is in its lowermost position the second platform can be lowered to the floor on which the truck stands.

3. A truck as claimed in claim 1 or 2, wherein the longitudinal axis of the operating platform is parallel to the longitudinal axis of the truck and the operating platform lies vertically above the frame of the truck.

4. A power driven truck substantially as described with reference to and as illustrated in Figures 1 and 2 or Figures 3 and 4 of the accompanying drawings.

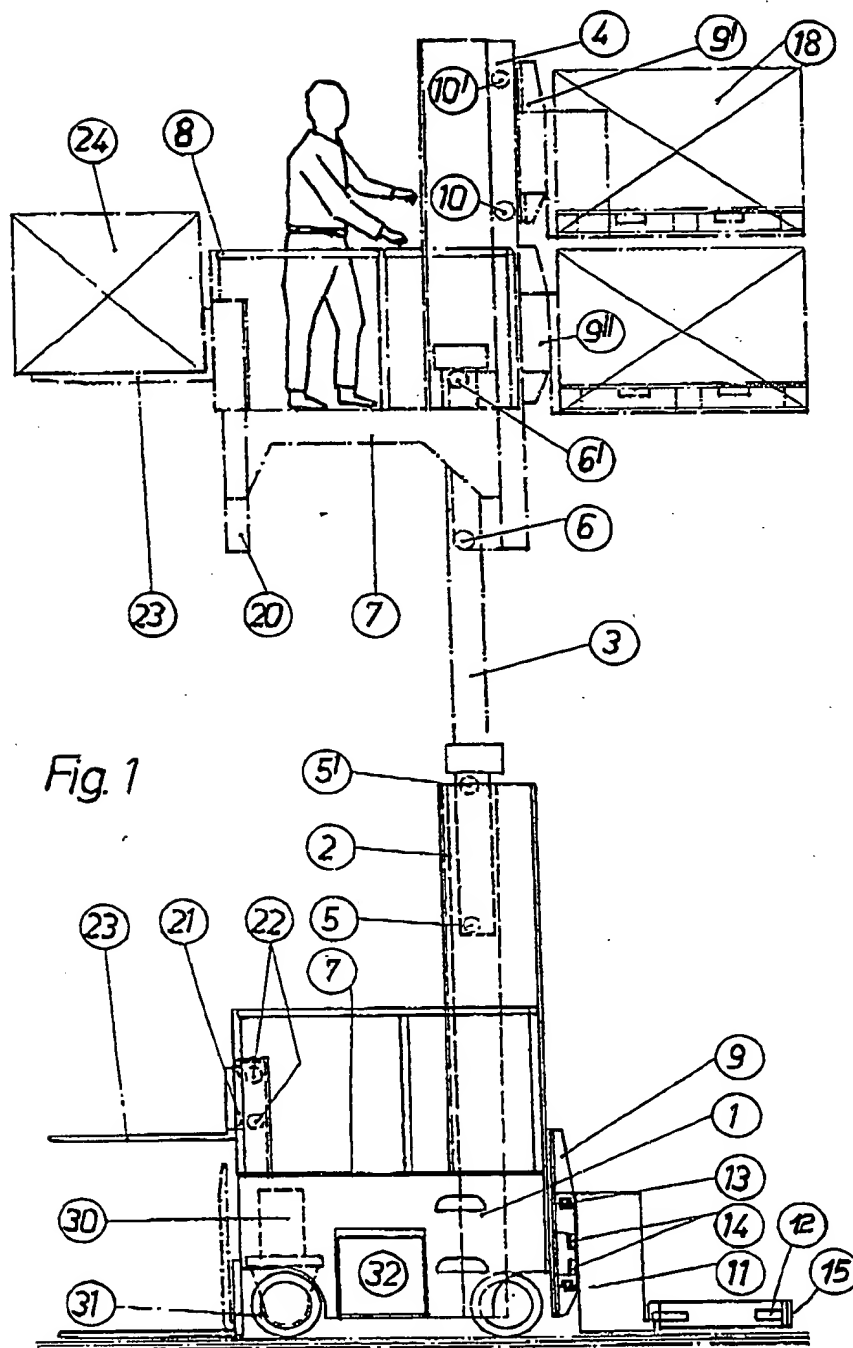
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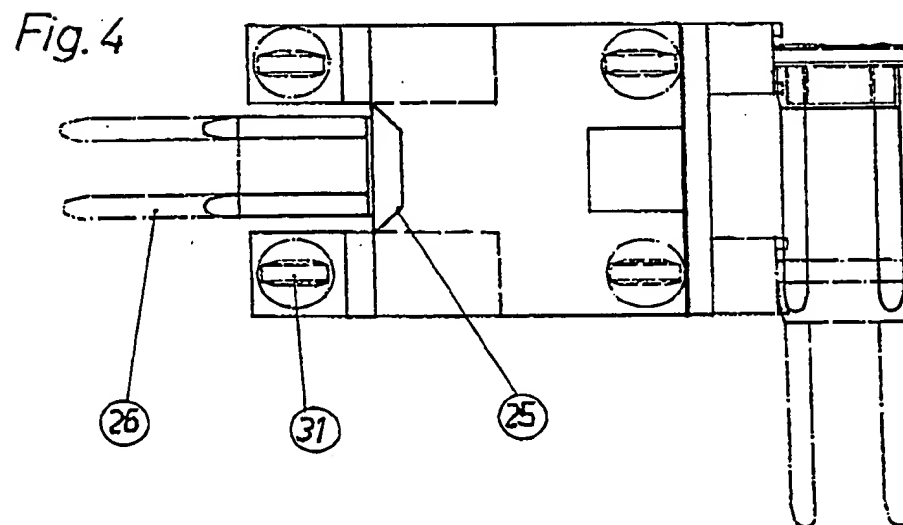
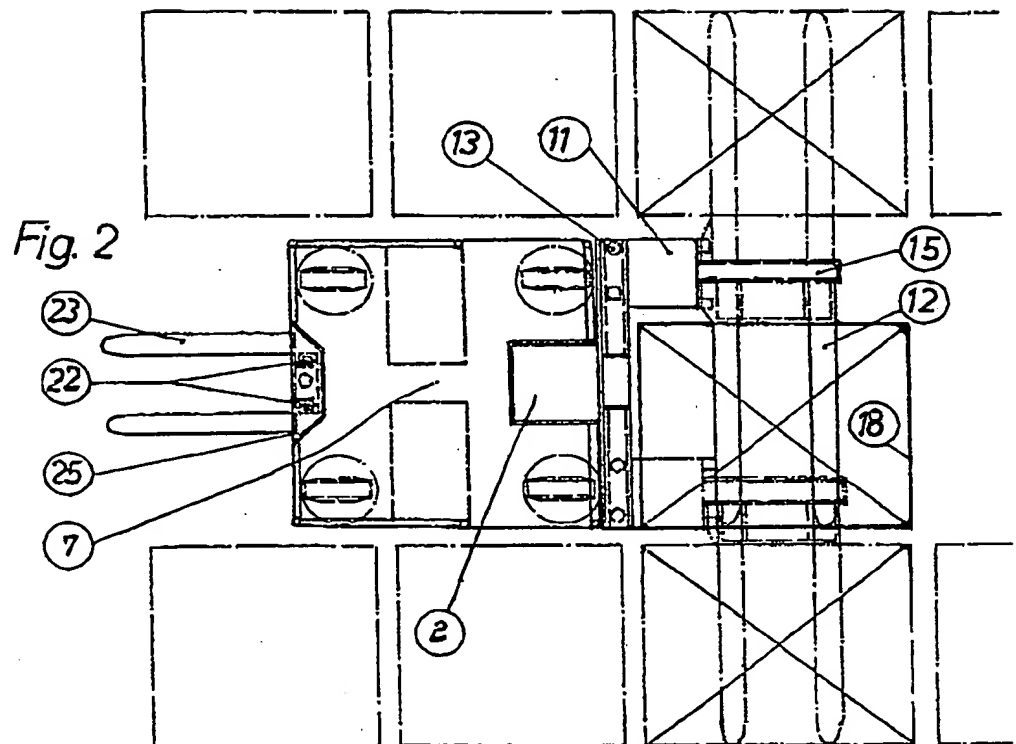
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3 SHEETS

COMPLETE SPECIFICATION

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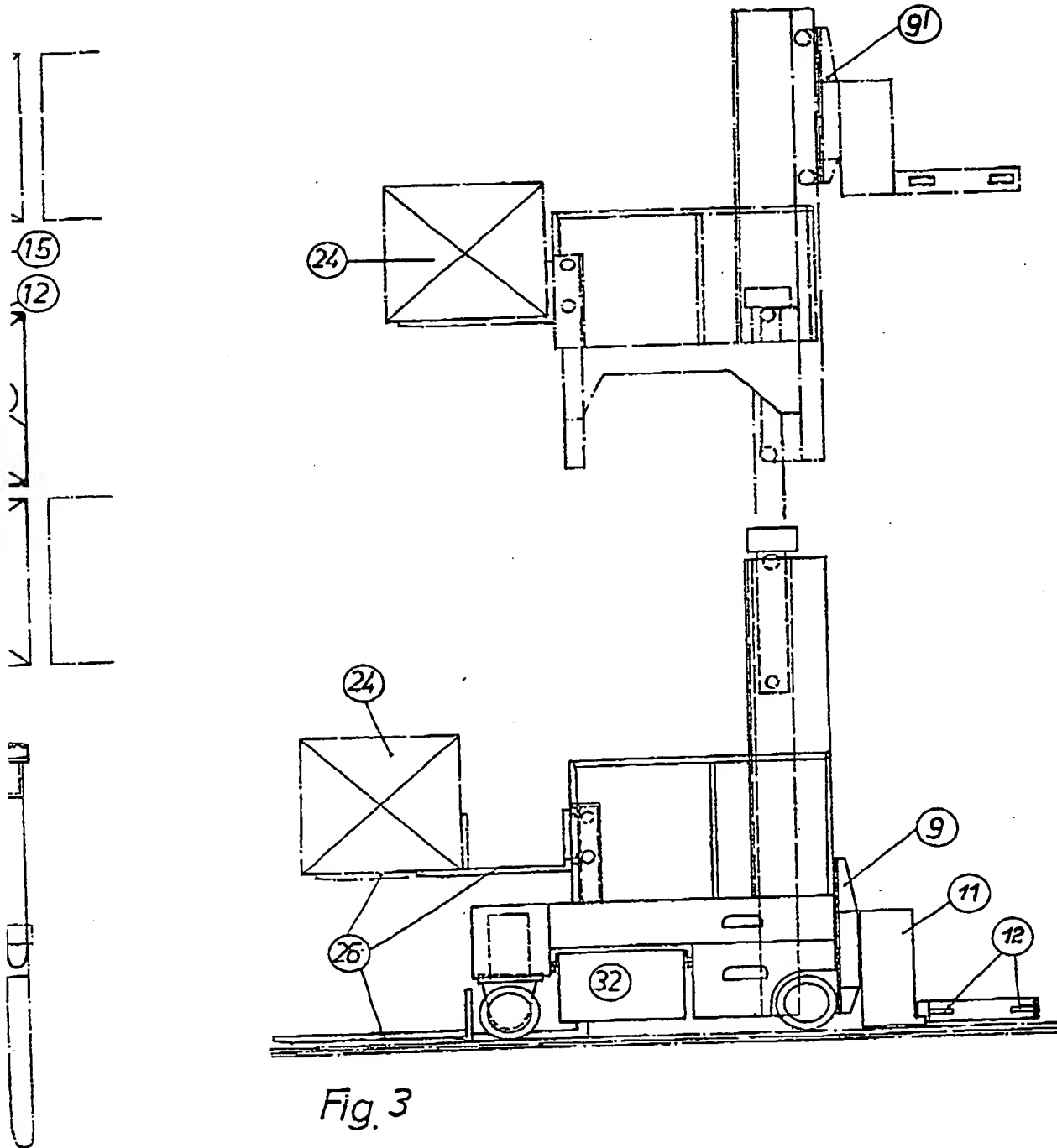
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COMPLETE SPECIFICATION

3 SHEETS

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SHEETS 2 & 3



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